Microwave spectroscopy has been restricted to the investigation of small molecules in the last years. However, with the advent of FTMW and CP-FTMW spectroscopies coupled with laser vaporization techniques it has turned into a very competitive methodology in the studies of moderate-size molecules. In particular, the studies of relatively large molecular aggregates\textsuperscript{a, b} are very interesting, being a bridge between microsystems and molecular bulk.

Here, we present the study of two pentamers of difluoromethane \((\text{CH}_2\text{F}_2)_5\) and the water clusters \((\text{CH}_2\text{F}_2)_1\cdots(\text{H}_2\text{O})_2\), \((\text{CH}_2\text{F}_2)_2\cdots(\text{H}_2\text{O})_1\) and \((\text{CH}_2\text{F}_2)_2\cdots(\text{H}_2\text{O})_2\) stabilized by weak hydrogen bonds networks (O-H\cdots-F, C-H\cdots-F and C-H\cdots-O interactions). The experiments were carried out in the CP-FTMW spectrometers of Bilbao (Spain)\textsuperscript{c} and Virginia (USA). In addition, the experimental work was supported by theoretical calculations. The force fields were specifically parameterized for reproduce others oligomers where WHB interactions play a crucial role.